

Certificate of Analysis

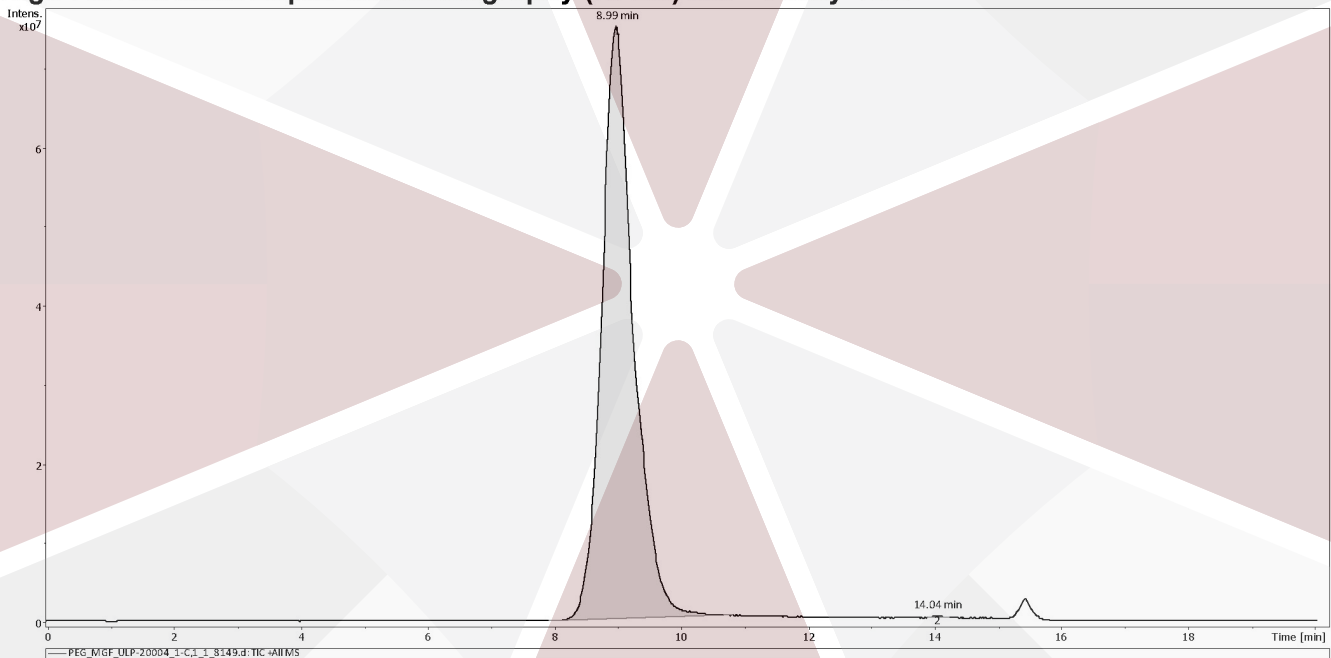
PEG-MGF

pegylated Insulin-like growth factor fragment (IGF-1Ec)

Compound : PEG-MGF
Lot number : ULP-20004
Analysis date : 2025-01-09
Purity % : 99.90%
Method : HPLC-MS

Client : UMBRELLA.us
3280 E Hemisphere Loop
Tucson, Arizona 85706

High Performance Liquid Chromatography (HPLC) MS – Purity Test



Number of detected peaks: 2

PEAK LIST	Time (min)	Area	%Area	
1	8.99	2.61E+09	99.90	PEG-MGF
2	14.04	2.54E+06	0.10	

Analysis Performed by
Ken Pendarvis, ChE
Analytical Chemist
MZ Biolabs
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2025-01-10

Note: Injectable peptides may contain salts and sugars to aid in solubility and act as pH buffers. These are not normally detected using UV and are not considered impurities.

PEG-MGF

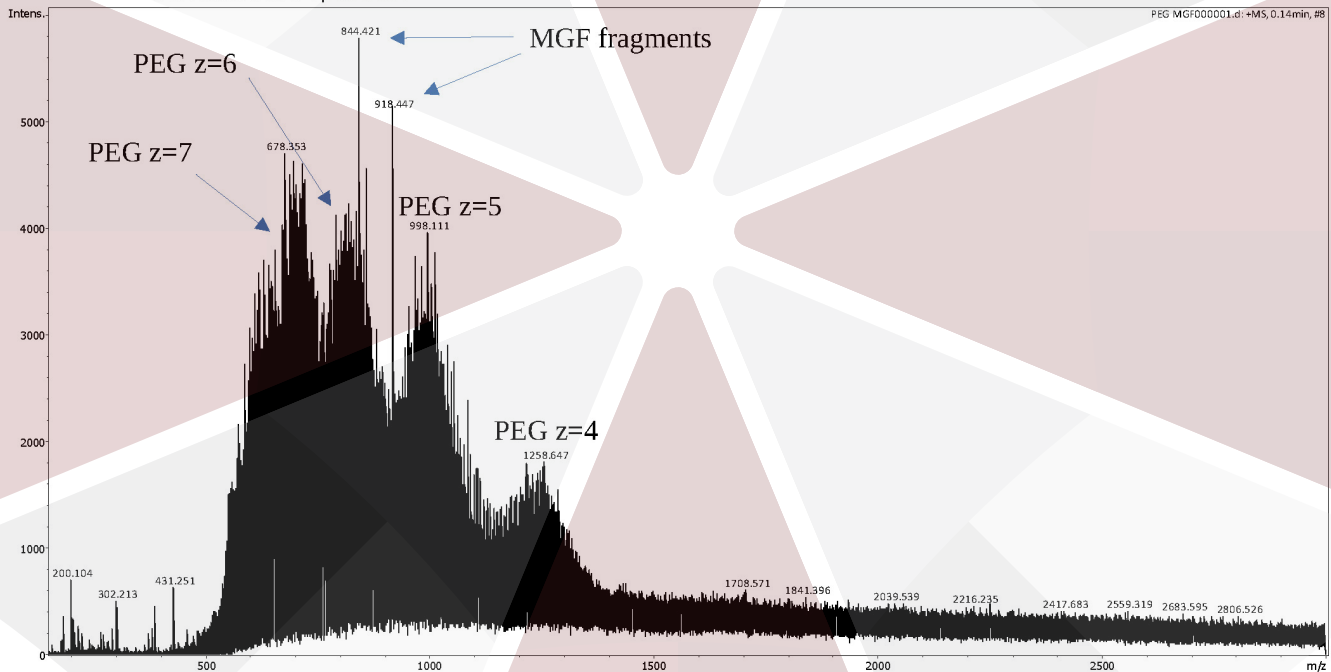
pegylated Insulin-like growth factor fragment (IGF-1Ec)

Mass Spectrometry (MS) – Identity Test

Molecules with PEG added are difficult to interpret. The spectrum below shows 4 large overlapping humps corresponding to different charge states of PEG when ionized (+4, +5, +6, +7). These humps are characteristic of PEG and indicate the MGF is pegylated. This is further confirmed by the m/z spacing corresponding to the 44 Da repeating peg units. This is not shown below because space constraints. MGF is confirmed by the peaks of m/z 844 and 918 which are unique to MGF and appear when the mass spectrometer provides a slight fragmentation energy to the sample.

Identity Confirmed

Recorded MS spectrum



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